

THE MINERAL INDUSTRY OF

ITALY

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Italy has been a significant processor of imported raw materials as well as a significant consumer and exporter of mineral and metal semimanufactured and finished products. The country was Western Europe's second largest cement producer after Germany, and the manufacturing of steel products was of world significance. Although Italy was an important producer of dimension stone, feldspar, and marble, and produced almost one-half of the world's pumice, the minerals sector experienced a further decline. Most traditional mining either had stopped because of reserve depletion or had been suspended for environmental reasons.

In 1994, there was an improvement in the Italian economy as measured by output growth, and inflation was reduced to less than 4%. Iron and steel, ceramics, and chemicals were among the positive export sectors. Unemployment, at the rate about 11% of the working population, continued to be a problem.

Government Policies and Programs

The basic mining legislation of Italy was Royal Decree No. 1443 of July 29, 1927, as amended by Law No. 1360 of November 7, 1941. This law vested ownership of subsoil minerals to the state. With certain limitations, quarried minerals were the property of the private landowner. Foreigners were permitted to explore, own, and operate mines but had to incorporate under Italian laws. Petroleum activities were governed by Law No. 6 of January 1957, as amended by Title II of Law No. 613 of July 21, 1967. Ownership of petroleum and gas also was vested in the state. Concessionaires were required to turn over 9% of all extracted hydrocarbons to the state or pay an equivalent sum.

Law No. 752, regulating mining in Italy, was approved by the Parliament on June 10, 1982. In general, the law strengthened involvement of the Government in the mineral industry. The concessionaires would have to reimburse the state for its contributions, starting after the property has been in production for 3 years. Mining of strategic minerals would be kept operational at the Government's expense. No stockpiling programs were under way in Italy except normal industrial stocks and stocks of crude oil for 90 days of consumption.

Under Italy's mining policy, copper, gold, lead, manganese, molybdenum, nickel, tungsten, zinc, and zirconium were identified as minerals considered essential for the Italian economy and were to be given priority in the funding of

Italian companies for exploration abroad.

Environmental Issues

There has been increasing sensitivity to environmental problems and resistance to the construction of new coal-fired and nuclear electricity-generating plants. Production of potash and some rock salt has been suspended until adaptations to conform to environmental regulations have been implemented. Strict enforcement of regulations was expected to induce private and public industries to install more pollution-control devices.

Production

The aggregated growth in the extractive industries was minimal. Among the metallic ores, lead, manganese, and zinc were mined in 1994, although production was declining significantly. Lead and zinc mining was expected to cease by yearend 1995.

Italmagnesio SpA's Dosseni magnesium mine remained closed throughout 1994. Reportedly, the closure was for economic and environmental reasons. Italmagnesio's magnesium alloy and anode production continued.

Industrial mineral production remained the most important sector with overall output remaining more or less constant. Domestic production of natural gas and petroleum continued to increase. Italy's most notable contribution to global mineral commodity supplies continued to be its production of processed materials based on imported raw materials. (*See table 1.*)

In 1994, the country ranked seventh globally in steel production and was second after Germany among European Union (EU) producers. Italy also ranked seventh globally in cement output and first in crude oil refining capacity among EU producers.

Italy increasingly has become dependent on its trade with other EU countries. It has been estimated that Italy's share of total exports going to EU partners increased from 48% in 1981 to more than 60% in 1993. (*See table 2.*)

Structure of the Mineral Industry

Private and public companies owned facilities for the production and processing of minerals, metals, fuels, and products. However, some state-owned enterprises were

retained for economic and employment reasons. The Government bank allocated credit to state-owned corporations to avoid the social impact of closure of uneconomic ventures. The primary minerals administrative agency was the Direzione Generale delle Miniere, which also collected mineral statistics. (See table 3.)

Commodity Review

Metals

Alumina and Aluminum.—Alumina in Italy was produced only by Eurallumina S.p.A., at Portoscuso in Sardinia. The company was owned jointly by Alumix S.p.A. (52.1%) and by Australian interests. Almost all alumina in Italy was produced from imported bauxite, most of which was obtained from Australia and Guinea. Bauxite was no longer mined in any significant amount in Italy.

Alumix S.p.A., part of the state holding company Eute Fiere Italiane Atacchine, was the only primary aluminum producer in Italy. Alumix operated five smelters: one at Bolzano, one at Porto Marghera, and two at Fusina, all of which are near Venice, and one at Portoscuso in Sardinia.

More than 80% of the production was used domestically. Italy imported almost 50% of its total aluminum requirements. Details on output and/or capacity were not readily available on Italy's several secondary aluminum producers.

Copper.—Italian refined copper production has remained fairly consistent. Enirisorse S.p.A., formerly Nuova Samim S.p.A., was the largest producer of refined copper, lead, and zinc metal in Italy, employing almost 3,350 workers. Enirisorse produced about 55% of Italian copper metal. Virtually all of the country's output was derived from scrap, ashes, slag, and other residues.

Enirisorse also produced antimony metal, bismuth, gold, and silver. All sources of Enirisorse's scrap, from copper and aluminum cables to batteries, were handled by two subsidiaries, Nonfermet S.p.A. and Eurobatex S.p.A., which selected and sorted the material before passing it on to the refining plants.

Secondary copper was produced by Enirisorse at Paderno Dugnano, near Milan, using alloy scrap and low-grade copper scrap as raw materials. Plant capacity for secondary copper was 50,000 metric tons per annum (mt/a). Copper scrap from European sources was refined by Enirisorse at its Porto Marghera copper-zinc plant, near Venice. Copper cathode capacity at the plant reportedly was increased to 60,000 mt/a. In an attempt to reduce the cost of scrap material, a new furnace using Boliden technology will produce 25,000 mt/a of blister copper from lower grade dusts, which will then be fed into the existing Maerz anode furnace.

Lead and Zinc.—Italy imported most of its supplies of

lead and zinc concentrates, with Canada being the largest single source for lead and zinc concentrates. Within Italy, most lead and zinc concentrate production came from Enirisorse's mines in Sardinia. This production had virtually stopped because reserves have been depleted. There was a small quantity of byproduct lead concentrate produced from fluorite operations. Enirisorse's lead and zinc smelters were also in Sardinia, and the zinc electrolytic plant was near Venice. The Porto Vesme smelter in Sardinia produced primary lead and zinc metal and cadmium, while the San Gavino complex, near Porto Vesme, produced refined lead and byproducts, such as bismuth, gold, and silver. Secondary lead, including soft lead and alloys, was produced by Enirisorse at the Paderno Dugnano and Marcianise plants, whose capacities were 50,000 mt/a and 35,000 mt/a, respectively.

In 1994, Enirisorse's zinc smelter in Crotone was closed, pending a decision whether to go ahead with production or convert to other types of processing. This smelter was acquired from Pertusola Sud S.p.A. in 1990 and expanded Enirisorse's control over the country's lead and zinc industry. Enirisorse operated four zinc plants with a total capacity of 349,000 mt/a. The company also produced cadmium and germanium.

Steel.—Italy was the second largest producer of crude steel in the EU, after Germany. About 40% of steel in Italy was produced by basic oxygen furnaces and 60% was produced by electric arc furnaces. In Italy, about one-half of the steel was produced by private companies, with the rest by Government-owned enterprises. All iron ore was imported in 1994, of which 37% came from Australia and 35% from Brazil. The country's steel industry imports about 3.5 million metric tons a year (Mmt/a) of scrap, mostly from France and Germany.

Ilva S.p.A. was the country's largest steel company. With a crude steel output of about 10.6 Mmt/a, Ilva was the sixth largest steel producer in the world. Flat products were the company's main strength, with Taranto being one of the largest flat-rolled steel centers in the world. Ilva employed about 45,000 workers in 1994. Almost 20% of the company's steel was exported. Ilva continued to be a major importer of metallurgical coal, primarily from the United States.

Ilva was in the process of divesting itself of facilities to make long products and changing almost entirely to light, flat-rolled products. The company reportedly was considering private investment in the company's core business and the sale or closure of the rest. Investors could be either domestic or foreign. At yearend, details of the privatization were being considered by the Government.

Several Italian and foreign steel companies have expressed interest in buying Ilva Laminati Pianti (flat products) and Acciai Speciali Terni (stainless steel products) of the Ilva group. Presentation of preliminary nonbinding offers were due in February 1994.

Industrial Minerals

Asbestos.—Amiantifera di Balangero S.p.A. was the only company in Italy that produced asbestos. The San Vittore Mine was the only significant asbestos producer in Western Europe. The surface mine was in the village of Balangero near Lonzo, about 50 kilometers (km) north of Turin. Reserves were estimated to be large, and the grade of asbestos averages more than 6% fiber. Tailings were stored in a valley about 4 km from the mill. Owing to reduced demand, production started to decline in the late 1970's. It went from 165,000 metric tons (mt) tons in 1977 to about 35,000 mt in 1990.

At yearend 1990, the mine had ceased production and remained closed through 1994. The future of the mine reportedly was uncertain because of environmental problems. The Government's announcement of new legislation that, if passed, would result in the termination of chrysotile and amphibole applications within Italy, could result in the mine being permanently closed.

Barite.—Three companies in Italy were mainly producing barite: Mineraria Baritina S.p.A., with mines at Trentino, Monte Elto, and Primaluna, east of Milan; Samatec S.p.A. with one mine at Masticarro in Calabri and one mine at Schilipario in the Alps; the Sardinian regional government's holding company Ente Mineraria Sarda, with mines at Barega, Iglesias Province, Mont 'Ega, Narcao Province, and Monte Tamara Province in Sardinia.

Most of the mines produced a 91% to 92% BaSO₄ granulated barite that was used by the well-drilling industry. The Mont 'Ega Mine produced a relatively high-grade 97% barite material that was used by the chemical industry.

Cement.—Italy was a major EU producer of cement, second only to Germany in the EU, and ranked seventh in the world. Italcementi S.p.A. was the largest of Italy's 50 cement producers, with about 40% of the Italian market.

Clays and Refractory Materials.—Unimin S.p.A. was the largest supplier of raw materials for the abrasive and refractory markets in Italy. Unimin's production facilities were in the city of Massa, in the Carrera area. Unimin imported bauxite from Brazil and China, kyanite from Brazil, flint clay and kaolin from China, and andalusite from South Africa to augment its domestic raw material production.

Most of Italy's bentonite mining took place on the island of Sardinia, with processing plants on the mainland. More than one-half of the country's bentonite production came from Industria Chimica Carlo Laviosa S.p.A. The company's main mining activity was in the Pedra de Fogu and Puntenuova areas of Sardinia. Production from these areas fed the processing plants at Oristano in Sardinia and at Livorno, south of Pisa. Montmorillonite clay (white bentonite) was quarried at S`Aliderru in northwestern Sardinia. Caffaro S.p.A., operating in Sardinia, was Italy's only producer of

acid-activated montmorillonite. The clay was shipped to the company's plant at Porto Marghera near Venice. Several small bentonite producers operated on the mainland, at Foggia in the district of Puglia, and at Pietracuta di S. Leo in the Pesaro district.

Acdal S.p.A., a subsidiary of Industria Generale Ceramiche S.p.A., produced about 150,000 mt/a of clay from its Cave del Mastro operation at Lozzolo, near Gattinara, in the Province of Vercelli. About 80% of the clay was used in the manufacturing of tile. Industria Chimica Carlo Laviosa S.p.A. produced clay at Cagliari in Sardinia. The company operated several quarries in the Province of Nuoro, with production amounting to about 130,000 mt/a.

Feldspar.—Italy was the world's leading producer of feldspar and feldspathic minerals. These materials were important constituents of ceramic tile. Italy accounted for 30% of world tile output and more than 50% of the total tile produced in the EU. In Italy there were more than 350 small companies producing tiles, employing about 30,000 workers. Clay was imported from France, Germany, and the United Kingdom.

The largest producer of albite was Maffei S.p.A., which operated a surface mine at Pinzola in the Trentin district. Miniera di Fragne S.p.A. also produced albite from its surface mine at Mud di Mezzo and processed the material at its processing plant at Aladna Valsesia in Vercelli.

Fluorspar.—Production of fluorspar in Italy has been steadily declining. The main fluorspar-producing area was in the Gerrai region, about 40 km from Cagliari, Sardinia. Six mines were in operation: two in Sardinia, operated by Mineraria Silius S.p.A. at Genna Tres Montes and Muscadroxiu; and four in the Latium/Lazio area. Soricom S.p.A. operated the mine at Pianciano, and IPIM S.p.A. operated mines at Prato del Casone and Acquaforte e Valentano.

Assets and operations of Mineraria Silius were taken over by Nuova Mineraria Silius S.p.A. However, the Sardinian regional autonomous government maintained its majority share in the company's equity. Production capacity of Mineraria Silius was about 110,000 mt/a of fluorspar, 30,000 mt/a of barite, and 15,000 mt/a of lead concentrate.

Marble.—Marble and travertine production from the world famous quarries at Massa and Carrara has increased slightly in the past 2 years. Italian marble occurred in many localities, from the Alps to Sicily, and was quarried at hundreds of operations. The most important geographic area producing white marble was in the Apuan Alps in Tuscany, particularly near the town of Carrara. The Lazio region, Lombardy, the Po Valley, Puglia, the Island of Sicily, and Venice were important colored marble-producing areas.

About one-half of production was in block form, and 45% of total production was exported. Annual output of the Carrara district was about 700,000 mt, or almost 35% of the

country's total white marble production.

Other major areas included the Valle di Susa, near Turin in the northwestern Italian Alps; the valley of the Po River in Lombardy; the Verona-Vicenza area of Venice; and the vicinity of Benevento, northeast of Naples in southern Italy. Reserves were considered to be unlimited.

Perlite.—Since the closing of the perlite mines on the Island of Ponza off the coast of Naples, most of the perlite produced in Italy comes from Sardinia. Perlite was produced by Perlite S.p.A. at Monti Arci from a volcanic zone of that name in west-central Sardinia. Perlite's processing facilities were at Torre Grande near the Port of Oristano.

Potash.—The production of potash continued to be suspended. The main reasons for the suspension were the result of a severe drought that has restricted availability of process water to the plants and the prevention of removal of waste material and mine water owing to environmental/ecological concerns. At yearend, the three underground mines that were operating in Sicily at Pasquasia, Racalmuto, and Realmonte were on standby.

Pumice and Pozzolan.—Italy was the world's leading producer of pumice and pozzolan. The Mediterranean Island of Lipari, 40 km off the northern coast of Sicily, was the focus of the Italian pumice industry. Two companies in Italy quarried pumice for world markets, Italpomice S.p.A. and Pumex S.p.A. Pumex, with about a 650,000-mt/a capacity, was Italy's largest pumice producer. The company quarried the Mount Pelato deposit on Lipari. Most pumice was exported to the United Kingdom. W. R. Luscombe Ltd., formerly an equity partner, became a wholly owned subsidiary of Pumex. Italpomice produced pumice at Acqualcalda on Lipari, with an output of about 70,000 mt/a.

Pyrite.—Pyrite was mined almost exclusively by Solmine S.p.A. at its Compiano Mine in Tuscany. The Niccioleta Mine was closed in late 1992 because of mineral reserve depletion and associated problems. Societa Edem S.p.A. produced small amounts of pyrite in its Val de Castello Mine.

Salt.—Italy's three major producers of salt were Italkali Societa Italiana, Solvay S.p.A., and Societa Montecatina. Salt was produced at seven areas in Italy. Italkali, based in Sicily, was a major producer of rock salt, with underground mines at Racalmuto and Realmonte in Agrigento, Petralia in Palermo, and Pasquasia in Enna. In addition, Solvay operated mines in Tuscany at Buriano, Ponteginori, and Querceto. Solvay moves the salt extracted by solution mining via pipeline to its Rosignano plant to produce sodium carbonate and bicarbonate by electrolytic processing.

Societa Montecatina operated the Timpa del Salto salt brine chamber at Calabria. The ultra pure (99.9% NaCl) salt was shipped to the Endichem plant at Porto Marghera to

produce chlorine and sodium.

Sulfur.—Italy, once the world's leading producer of mined sulfur, was a modest producer of sulfur in 1994, obtaining one-half or more of its output as a byproduct of petroleum refinery operations. Other sources were iron and cupreous pyrite deposits in the Maremma district of Tuscany. Elemental sulfur was obtained from pyrite from Solmine's Campiano Mine in southern Tuscany. Sulfuric acid was produced at the Torviscosa plant near Porto Marghera.

Talc.—Talco e Grafite Val Chisone S.p.A. operated two underground mines at Pinerolo near Turin. The white talc, mined from metamorphic rocks, has been of very high quality. Talco owned 10% interest in an open pit mine at Orani, in Sardinia, with the other 90% belonging to the Sardinian Mining Board. Talco Sarda S.p.A. also operated a mine at Orani. Talco e Grafite Val Chisone S.p.A. operated an underground mine at Fontane, and Industria Mineraria Italiana S.p.A. (IMI) operated mines at Largone and Predaccia in Val Malenco, northern Italy. About 35% of IMI's production reportedly was exported to France, Germany, and the Netherlands.

Mineral Fuels

The country relied heavily on imported energy, satisfying 80% of total demand with purchases from abroad. Energy was the largest deficit item in the trade account. Ente Nazionale Electrica (ENEL), the state electricity corporation, imported about 15% of its electricity from France and Switzerland.

Coal.—Domestic production of lignite in Italy was concentrated on one surface mine at St. Barbara, in Tuscany, operated by ENEL for use in domestic electricity production. Production from Carbosulcis S.p.A.'s underground subbituminous coal (sulcis) mine in Sardinia ceased, and the mine closed. Italy was heavily dependent on imported coal, mostly from the United States and South Africa, to meet its coal requirements.

Geothermal Energy.—Most Italian geothermal energy is produced in the Larderello, Monte Amiata, and Travale areas in Tuscany. Geologic, geostructural, and seismic exploration has been actively pursued in these areas along with research for power stations exploiting geothermal energy.

Natural Gas and Petroleum.—More than 100 natural gasfields were in operation, of which 70% were located offshore. Natural gas supplied almost 25% of Italy's total energy needs. About 35% was produced domestically. More than 25% was imported from Algeria through a 1,070-km-long natural gas pipeline from Algeria to Mazzara del Vallo in Sicily. The former Soviet Union continued to supply 25% of the country's natural gas through a pipeline across Austria

and the Czech Republic.

About 20% of Italy's very small domestic petroleum production came from Sicily. With an annual consumption of almost 95 Mmt of petroleum, Italy was the EU's second largest petroleum consumer after Germany.

Unione Petrolifera represented the country's private oil companies. The Saras refinery was the largest in Italy and reportedly was the most competitive in the Mediterranean area.

Italy was almost totally dependent on imported petroleum. With no large coal or gas industries, petroleum accounted for 75% of the country's energy needs.

Infrastructure

A total of 20,085 km of railroad track was operational in 1994. Highways totaled 294,410 km. Superhighways totaled 5,900 km, and 7,010 km of Italy's roads was unpaved, mostly in the southern half of the country. There were 1,203 km of crude oil pipelines in service, 2,143 km of refined product pipelines, and 13,740 km of gas pipelines.

Outlook

Public and private spending on environmental controls was expected to grow, particularly in the areas of water-treatment and transportation equipment and services, urban and industrial waste disposal, soil contamination, and emissions.

Mining of metallic ores is expected, for all practical purposes, to cease. The metals processing industry, based primarily on imported stocks, will continue to play an important role in Italy's economy. Italy is expected to remain a large producer of secondary aluminum and the second largest producer, after Germany, of crude steel in the EU.

The industrial minerals quarrying industry and preparation plants will remain significant in Italy, especially the production of barite, cement, clays, fluorspar, marble, and

talc. Italy will continue to be the world's leading producer of feldspar, feldspathic minerals, and pumice. The ceramics sector will continue to be important, particularly regarding exports.

Domestic output of natural gas, crude petroleum, and petroleum refinery products is expected to grow, while Italy will continue to depend on imported coal, gas, and petroleum.

¹Text prepared Aug. 1995.

Major Sources of Information

Ministero dell' Industria, del Commercio e dell' Artigianato
Via Molise, 2

00187 Rome, Italy

Includes:

Direzione Generale delle Miniere.

Corpo delle Miniere.

Associazione Mineraria Italiana per l'Industria Mineraria e
Petrolifera

Via A. Bertoloni, 31

00197 Rome, Italy

Istituto per il Trattamento dei Minerali

Via Molise 2,

00187 Rome, Italy

Major Publications

Annuario di Statistiche Industriali.

Annuario Statistico Italiano.

Bolletino Mensile di Statistica.

Relazione sul Servizio Minerario e Statistica delle Industrie

Estrattive in Italia, published annually.

Statistica Mensile del Commercio con l'Estero

Statistica Annuale del Commercio con l'Estero.

L'Industria Mineraria published monthly.

TABLE 1
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994 e/
METALS					
Aluminum:					
Alumina	752,000	805,000	762,000 r/	840,000	825,000
Bauxite	338	8,600	97,500 r/	90,100	90,000
Metal:					
Primary	232,000	206,000	161,000	156,000	177,000
Secondary	350,000	343,000	353,000	346,000	319,000
Antimony: Oxides, gross weight 3/	940	861	1,170	942	900
Bismuth metal	34	45	20 r/	15	5
Cadmium metal, smelter	691	658	742	517	659
Copper: Metal, refined, all kinds	83,000	82,500	76,000	90,300	81,000
Iron and steel: Metal:					
Pig iron	11,900	10,900	10,500	11,100	11,200
thousand tons					
Ferroalloys:					
Blast furnace:					
Ferromanganese	-- r/	--	--	--	--
Silicon pig iron e/	1,000	600	500	500	500
Electric furnace:					
Ferromanganese	53,100	47,200	60,300	53,500	22,700
Ferromanganese	41,800	14,100	17,100	17,000	16,000
Ferrosilicon	39,800	12,600	12,000	3,350	--
Silicomanganese e/	56,000	55,000	50,000	50,000	50,000
Silicon metal	13,000	6,200	10,000	--	--
Other e/	14,500	14,500	12,000	12,000	10,000
Total e/	219,000	150,000	162,000	136,000	99,200
Steel, crude	25,400	25,000	24,900	25,700	26,100
Semimanufactures	23,100	23,800	23,300	21,800	22,800
do.					
Lead:					
Mine output, Pb content	16,000	14,200	16,000	10,000	7,400
Metal, refined:					
Primary	64,600	112,000	102,000	89,900	91,700
Secondary	102,000	96,500	84,300	92,900	114,000
Total	167,000	208,000	186,000	183,000	206,000
Magnesium:					
Mine output, Mg content	7,920	3,910	--	--	--
Metal, primary	5,730	3,920 r/	1,210 r/	--	--
Manganese, mine output:					
Gross weight	6,660	8,340	8,350 r/	8,300	8,000
Mn content	1,660	2,350	2,090 r/	2,080	2,000
Silver metal	105,000	179,000	129,000 r/	93,400	90,000
kilograms					
Zinc:					
Mine output, Zn content	43,000	36,300	35,000 r/	7,100	26,700
Metal, primary	264,000	264,000	253,000	254,000	242,000
INDUSTRIAL MINERALS					
Asbestos	3,860	15,000	--	--	--
Barite	44,300	88,500	74,900 r/	52,000	61,000
Bromine e/	400	400	300	300	300
Cement, hydraulic	40,000	40,800 r/	41,300 r/	42,000	42,000
Clays, crude:					
Bentonite\	228	385	150 r/	--	--
thousand tons					
Refractory excluding kaolinitic earth	641	462	400	400	500
do.					
Fuller's earth	46	23	28 r/	30	--
do.					
Kaolin	67	49	33 r/	--	--
Kaolinitic earth	18	16	15	15	15

See footnotes at end of table.

TABLE 1--Continued
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1990	1991	1992	1993	1994 e/
INDUSTRIAL MINERALS--Continued					
Diatomite e/	25,000	23,000	26,000	25,000	
Feldspar	1,610,000	1,300,000	1,690,000 r/	1,550,000	1,650,000
Fluorspar:					
Acid-grade	81,800	60,700	40,000	50,000	45,000
Metallurgical-grade	40,700	37,900	20,000	39,000	39,500
Total	122,000	98,500	60,000	89,000	84,800
Gypsum thousand tons	1,260	1,290	1,300	1,200	1,200
Lime, hydrated, hydraulic and quicklime e/ do.	3,850	3,800	3,600	3,600	3,500
Nitrogen: N content of ammonia do.	1,200	1,150	1,100	729	504
Perlite e/	71,000	70,000	65,000	65,000	65,000
Pigments, mineral: Iron oxides, natural e/	850	800	700	700	600
Potash, crude salts:					
Gross weight thousand tons	661	429	940	200	--
K ₂ O equivalent do.	138	63	126	24	--
Marketable product, K ₂ O equivalent do.	51	31	86	20	--
Pumice and related materials: e/					
Pumice and pumiceous lapilli do.	725	700	600	700	700
Pozzolan do.	4,500	4,500	4,500	4,500	4,500
Pyrite, all types, gross weight do.	806	553	441	402	
Salt:					
Marine, crude e/ 4/ do.	680	450	610	580	600
Rock and brine do.	3,750	3,500	3,210 r/	2,490	2,500
Sand and gravel: e/					
Volcanic sand do.	100	100	100	100	100
Silica sand thousand tons	4,300	4,200	4,000	4,000	4,000
Other sand and gravel	124,000	125,000	125,000	125,000	125,000
Sodium compounds: e/					
Soda ash thousand tons	610	600	600	500	500
Sodium sulfate	125	125	125	125	125
Stone: e/					
Dimension: 6/					
Calcareous:					
Alabaster	20	20	20	20	25
Marble in blocks:					
White do.	1,700	1,600	2,700	3,600	3,600
Colored do.	1,950	1,900	2,000	2,900	3,000
Travertine do.	1,150	1,100	1,000	1,000	1,000
Other:					
Granite do.	2,500	2,500	1,500	1,000	1,000
Sandstone do.	1,800	1,800	1,800	1,800	1,800
Slate do.	120	120	120	120	120
Crushed and broken:					
Dolomite do.	900	800	700 r/	700	700
Limestone do.	120,000	120,000	125,000	120,000	120,000
Marl for cement do.	12,600	13,100	14,100	14,000	12,000
Serpentine do.	1,500	1,500	1,500	1,500	1,500
Quartz and quartzite do.	250	250	250	250	250
Sulfur:					
Recovered as elemental and in compounds:					
S content of pyrite do.	290	214	174	145	130
Byproduct, oil refining and other sources e/ do.	297	280	280	300	300
Total e/ do.	587	494	454	445	430
Talc and related materials	152,000	161,000	173,000 r/	142,000	125,000
MINERAL FUELS AND RELATED MATERIALS					
Asphalt and bituminous rock, natural	39,800	39,300	36,000	38,000	36,000
Carbon black e/	155,000	150,000	140,000	130,000	130,000
Coal:					
Lignite thousand tons	1,490	1,550	1,140 r/	1,050	56
Subbituminous (Sulcis coal)	56,300	172,000	109,000 r/	7,600	--
Coke, metallurgical thousand tons	6,210	5,770	5,350	5,000	5,000
Gas, natural million cubic meters	17,300	17,400	18,200	19,400	20,500
Natural gas liquids e/ thousand 42-gallon barrels	400	400	400	400	400

See footnotes at end of table.

TABLE 1--Continued
ITALY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity		1990	1991	1992	1993	1994 e/
MINERAL FUELS AND RELATED MATERIALS--Continued						
Petroleum:						
Crude	do.	31,600	29,300	30,000	31,300	31,700
Refinery products:						
Liquefied petroleum gas	do.	26,300	24,600	30,000	25,500	26,600
Gasoline	do.	153,000	152,000	164,000	162,000	160,000
Naphtha	do.	15,400	15,800	16,000	16,000	16,000
Jet fuel e/	do.	17,000	18,000	22,200	22,200	23,000
Kerosene e/	do.	31,500	30,000	34,100	34,000	34,900
Distillate fuel oil	do.	216,000	222,000	220,000	218,000	220,000
Residual fuel oil	do.	155,000	148,000	157,000	154,000	139,000
Other	do.	33,600	32,200	35,000	35,000	35,000
Refinery fuel and losses e/	do.	41,500	40,000	38,000	39,000	38,000
Total e/		689,000	682,000	716,000	706,000	693,000

e/ Estimated. r/ Revised.

1/ Previously published and 1994 data are rounded by the U.S. Bureau of Mines to three significant digits; may not add to totals shown.

2/ Table includes data available through Mar. 1995.

3/ Reported figure.

4/ Antimony content is 83% of gross weight.

5/ Does not include production from Sardinia and Sicily estimated at 200,000 tons annually.

6/ Output of limestone and serpentine for dimension stone is included with "Stone: Crushed and broken." In addition to the commodities listed, a variety of other dimension stone was produced and previously listed, but available general information was inadequate for continued reliable estimation of output levels.

TABLE 2
ITALY: 1993 BALANCE OF PAYMENTS, SELECTED MINERAL COMMODITIES 1/

(Thousand dollars)

Mineral commodity	Exports to EU	Imports from EU	Net gain or (loss)	Exports to the world	Imports from the world	Net gain or (loss)
Crude industrial minerals:						
Feldspar	1,820	2,160	(341)	2,930	16,100	(13,200)
Magnesite	753	1,270	(515)	1,470	5,290	(3,820)
Slate	169	836	(667)	2,270	1,260	1,010
Other	150,000	408,000	(258,000)	388,000	963,000	(574,000)
Total	153,000	412,000	(260,000)	395,000	985,000	(591,000)
Metalliferous ores:						
Copper	493	375	118	571	401	170
Lead	--	1,620	(1,620)	517	12,100	(11,600)
Tin	--	185	(185)	13	185	(172)
Zinc	58	20,600	(20,500)	58	100,000	(100,000)
Other (including waste and scrap)	71,200	924,000	(853,000)	158,000	1,940,000	(1,780,000)
Total	71,800	946,000	(875,000)	160,000	2,050,000	(1,890,000)
Nonmetallic mineral manufactures	773,000	263,000	510,000	1,790,000	415,000	1,380,000
Metals:						
Iron and steel	2,940,000	3,130,000	(193,000)	6,380,000	4,750,000	1,640,000
Mercury	7	85	(78)	387	107	280
Other nonferrous metals	1,030,000	1,730,000	(708,000)	1,610,000	3,460,000	(1,850,000)
Total	3,960,000	4,870,000	(901,000)	8,000,000	8,210,000	(211,000)
Mineral fuels	693,000	1,520,000	(830,000)	3,880,000	14,600,000	(10,700,000)

1/ Table prepared by Harold Willis, Section of International Data.

TABLE 3
ITALY: STRUCTURE OF THE MINERAL INDUSTRY OF 1994

(Thousand metric tons unless otherwise specified)			
Commodity	Major operating companies and major equity owners	Location of main facilities	Annual capacity
Alumina	Eurallumina S.p.A. (Alumix S.p.A. 52.1%, and Comalco 26.9%, Clarendon 21%,- both Australian companies)	Plants at Portoscuso, Sardinia, and Porto Marghera, near Venice	720
Aluminum	Alumix S.p.A.	Smelters at Portoscuso, Sardinia; Porto Marghera and Fusina near Venice	255
Asbestos	Amiantifera di Balangero S.p.A.	Mine at Balangero, near Turin	100
Barite	Bariosarda S.p.A. (Ente Mineraria Sarda)	Mines at Barega, and Mont'Ega, in Sardinia	100
Do.	Edem S.p.A. (Government)	Mines at Val di Castello, in Lucca	20
Do.	Edemsarda S.p.A. (Soc. Imprese Industriali)	Mines at Su Benatzu, Sto Stefano, and Peppixeddu, in Sardinia	20
Do.	Mineraria Baritina S.p.A.	Mines at Marigolek, Monte Elto, and Primaluna, near Milan	20
Bauxite	Sardabauxiti S.p.A. (Government)	Mine at Olmedo, Sardinia	350
Cement	52 companies, of which the largest are:		
Do.	Italcement-Fabbriche Riunite Cemento S.p.A.	19 plants, of which the largest are Calusco, Monselice, and Collefero	(6,003)
Do.	Cementerie del Tirreno S.p.A. (Cementir)	Plants at Arquasta Scivia, Livorno, Maddaloni, Napoi, Spoleto, and Taranto	(6,250)
Do.	Unicem S.p.A.	Plants at Guidonia, Lugagnano, Morano, Piacenza, S'Arcangelo di Romagna, and Settimello	(4,630)
Copper, refined	Enirisorse (Government)	Refineries at Porto Marghera, and Pieve Vergonte	46
Do.	Europa Metalli - LMI S.p.A.	Refineries at Campo Tizzoro,, Fornaci di Barga, and Villa Carcina	26
Do.	Chimet S.p.A.	Refinery at Arezzo	13
Feldspar	At least 5 companies, of which the largest are:		1,500
Do.	Maffei S.p.A.	Surface mines at Pinzolo, Sondalo, and Campiglia Marittima; underground mine at Vipiteno	(200) (300)
Do.	Miniera di Fagne S.p.A.	Surface mine at Alagna Valsesia	(60)
Do.	Sabbie Silicee Fossanova S.P.A. (Sasifo)	Surface mine at Fossanova	(30)
Lead-Zinc, ore	Enirisorse (Government)	Mines at Masua, Monteponi and Sardinia	60
Lead, metal	Enirisorse (Government)	Refinery at San Gavino, Sardinia	80
		Kivcet smelter and Imperial Smelter at Porto Vesme, in Sardinia	114
Zinc, metal	Enirisorse (Government)	Plants at Crotone and orto Vesme, in Sardinia; and Porto Marghera, near Venice	349
Lignite	Ente Nazionale per L'Energia Elettrica (ENEL)	Surface mines at Pietrafitta (in Umbria) and San Barbara (in Tuscany)	1,500
Magnesium, metal	Societa Italiana Magnesio S.p.A. (INDEL)	Plant at Bolzano	8
Marble	A number of companies including:	Quarries mostly at Carrara and Massa	2,000
	Mineraria Marittima Srl	Quarries in the Carrara and Massa areas	(500)
	Industria dei Marmi Vicentini S.p.A.	Quarries in the Carrara area	(300)
	Figaia S.p.A.	Quarries in the Carrara area	(100)
Petroleum, crude	Ente Nazionale/Idrocarburi (ENI) Government	Oilfields: Offshore Sicily and in the Adriatic sea; onshore in Po River Valley	90 1/
Petroleum, refined	do.	About 30 refineries	2,000 1/
Potash ore	Industria Sali Otassici e Affini per Aziono S.p.A.	Underground mines at Corvillo, Pasquasia, Racalmuto, and San Cataldo, in Sicily	1,300
Do.	Sta Italiana Sali Alcalini S.p.A. - (Italkali)	Underground mines at Casteltermini and Pasquasia, in Sicily	700
Pumice	Pumex S.p.A.	Quarries on the Lipari Island north of Sicily	600
Do.	Sta Siciliana per l'Industria ed il Commercio della Pomice di Lipari S.p.A. (Italpomice)	do.	200
Pyrite	Nuova Solmine S.p.A.	Underground mines at Campiano and Niccioleta	900
Salt, rock	Sta Italiana Sali Alcalini S.p.A. (Italkali)	Underground mines at: Petralia, Racalmuto, and Realmonte, in Sicily	4000
Do.	Solvay S.p.A.	Underground mines at Buriano, Pontteginori and Querceto in Tuscany	2,000
Steel	Ilva S.p.A. (Government)	34 steel plants, the largest of which: Taranto	13,000 (8,000)
Do.	Riva S.p.A.	About 5 plants	5,000
Do.	Others	Various locations	10,000
Talc	Talco e Grafite Val Chisone S.p.A.	Mines at Pinerolo, near Turin, and at Orani, Sardinia	120
Do.	Industria Mineraria Italiana S.p.A.	Mine at Largone Predaccia	20
Do.	Talco Sarda S.p.A.	Maine at Orani, Sardinia	20

1/ Thousand 42-gallon barrels per day.